PCT/IL03/00719

מדינת ישראל
STATE OF ISRAEL

Ministry of Justice
Patent Office

משרד המשפטים
לשכת הפטנטים

This is to certify that annexed hereto is a true copy of the documents as originally deposited with the patent application of which particulars are specified on the first page of the annex.

זאת לתעודה כי רצופים בזה העתקים נכונים של המסמכים שהופקדו לכתחילה עם הבקשה לפטנט לפי הפרטים הרשומים בעמוד הראשון של הנספח.

PRIORITY DOCUMENT
SUBMITTED OR TRANSMITTED IN COMPLIANCE WITH RULE 17.1(a) OR (b)

This 03 -09- 2003 היום

רשם הפטנטים
Commissioner of Patents

נתאשר
Certified

חוק הפטנטים, תשכ"ז-1967
Patent Law, 5727 - 1967

בקשה לפטנט
Application for Patent

לשימוש הלישכה
For Office Use

מספר: Number	151573
תאריך: Date	09- 2002
הוקדם/נדחה Ante/Post-Dated	

אני, (שם המבקש, מענו ולגבי גוף מאוגד - מקום התאגדותו)
I. (Name and address of applicant, and in case of body corporate-place of incorporation)

טקסטאווי בע"מ
רח' מיקה 12
רמת גן 52299

TEXTAWAY Ltd.
12 Micah Street
Ramat Gan 52299

הממציאים: Inventors:
1. דאגלס יורק מלובסקי
MALAWSKY, Douglas York
2. עמיחי בן-דוד
BEN-DAVID, Amihay
3. אהוד לוי
LEVY, Ehud

בעל ההמצאה מכח THE LAW הדין שמה הוא
Owner, by virtue of
an invention the title of which is

(בעברית)
(Hebrew)
התקן להעברת תוכן ונתונים למכשיר יד

(באנגלית)
(English)
DEVICE FOR TRANSFER OF MOBILE DATA AND CONTENT TO MOBILE HANDSETS

מבקש בזאת כי ינתן לי עליה פטנט. hereby apply for a patent to be granted to me in respect thereof.

*בקשת חלוקה - Application of Division	*בקשת פטנט מוסף - Application for Patent Addition	*דרישה דין קדימה Priority Claim		
		מספר/סימן Number/Mark	תאריך Date	מדינת האיגוד Convention Country
*מבקשת פטנט from Application מס' No. _____ מיום dated _____	*לבקשה/לפטנט to Patent/Appl. מס' No. _____ מיום dated _____			

*יפוי כח: כללי / ~~מיוחד - רצוף בזה~~ / עוד יוגש
P.O.A.: general / ~~individual - attached~~ / to be filed later
הוגש בענין filed in case _____

המען למסירת מסמכים בישראל
Address for Service in Israel
לוצאטו את לוצאטו
ת.ד. 5352
באר שבע 84152
מספרנו: 15122/02

היום 1 בחודש ספטמבר שנה 2002
This of the year

חתימת המבקש
Signature of Applicant

Luzzatto & Luzzatto
By:
Attorneys for Applicant

לשימוש הלישכה

טופס זה כשהוא מוטבע בחותם לישכת הפטנטים ומושלם במספר ובתאריך ההגשה, הינו אישור להגשת הבקשה שפרטיה רשומים לעיל.
This form, impressed with the Seal of the Patent Office and indicating the number and date of filing, certifies the filing of the application the particulars of which are set out above.

* מחק את המיותר Delete whatever is inapplicable

15122/02

התקן להעברת תוכן ונתונים למכשיר יד

DEVICE FOR TRANSFER OF MOBILE DATA AND CONTENT TO MOBILE HANDSETS

15122/02

METHOD AND DEVICE FOR USING DATA AND CONTENT IN MOBILE HANDSETS

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to mobile data and content transfer methods and devices. More particularly the invention relates to a device useful in a variety of application, including – but not limited to – for example, devices for: (i) transferring data and content from an external device onto mobile handsets; (ii) activating server based mobile services, e.g., by sending a predetermined code or SMS message from an external device to a remote server; (iii) loading credits into prepaid accounts of customers as payment for air time or as payment for any other mobile service or product, etc.

Description of the Prior Art

In the description to follow, the term "mobile handset" is used in its broadest sense, and should be interpreted to include all types of portable devices, cellular phones, handheld computers, PDAs, telephones, any wireless communication device, etc. Similarly, the term "external device", as will be apparent from the description to follow,

should be given its broadest interpretation and includes all kinds of devices that are capable of communicating in any way with a mobile handset, e.g., via IR or other optical link, ultrasound, RF or direct connection, and which contain data, or may receive data from an external source, which is transferable via said link to the mobile handset. Such external device may include, *inter alia*, smart cards, magnetic strips, memory cards, other mobile handsets, etc.

Data transfer devices to mobile handsets are known in the art. Typically, data transfer devices to mobile handsets include the following technologies:

1. Smart card reader as accessory to mobile handsets - Mobile smart card readers exist as a part of the handset itself or part of its back cover or part of its battery or as a stand alone reader that is tailored to communicate with a limited number of handset models. Such mobile smart card readers are used for security, authentication, and electronic wallet applications in relation to financial and commerce applications, and in other mobile applications where the user has to be identified by a smart card in his/her possession.

2. Smart cards exist in the market and usually contain memory means and a processor capable of performing cryptographic functions. Smart cards are developed as a secure solution for security, payment and other financial applications.

3. Downloading and activating mobile services from the handset - Mobile handsets have the capability of receiving data services and content from servers over the air, via attachments to mobile messages (such as SMS or MMS), or part of internet

communication protocols such as WAP. In order to receive mobile data to the device the user activates the download process either from the device itself via messaging (by a SMS command for example) or by using mobile browsing technologies such as WAP, or by requesting the service from outside the mobile device, for example through a PC web site, or through an IVR system etc. In these manners a user can request a wide range of services such as picture downloads, ring tone downloads, live data services (such as weather updates), games and applications, and any other form of data and content that can reside on servers and be supported by mobile handsets.

4. Transferring content into the handset from other devices (not as part of a cellular communication network) - Handsets support several ways of communicating with other local devices:

4.1 through a physical plug that is usually connected to a PC or mobile accessory, such as a mobile camera.

4.2 through an infrared port, that can communicate with other devices equipped with matching infrared ports.

4.3 through a Bluetooth port, that can communicate with other devices equipped with matching Bluetooth ports.

5. The sale of air time or other credit (such as credit to purchase content) for prepaid accounts via scratch cards - The sale of air time or other credit for prepaid accounts is done in two major ways:

5.1 PIN (personal identification number) based solutions - A PIN number (sometimes called a Hidden Reload Number) is used to create credit or credit accounts, and is hidden by scratchable material on cards, these cards are then sold. To credit or charge (top-up) the account the user has to do the following: buy the card, reveal the PIN code number, contact the prepaid account manager (via IVR for example) transfer the PIN code number - and in return be credited with the same amount as he paid for the card containing the PIN number.

5.2 PINless solutions - the user pays for the credit at a point of sale that is connected to the credit management system, and the credit is updated on line at the time of purchase.

6. Paper cards with buttons - The technology needed to provide buttons on thin cards exists and is being used mainly in the greeting card and low-cost promotional items industry, to provide user interface for items such as thin calculators, and playing musical tunes on greeting cards. Common button methods are pressure buttons, in which a small metal spring has to be pressed to close a circuit, and conductive buttons, in which the button is printed on the card as a broken electricity line, and the human finger closes the circuit when the key is pressed. Buttons have also been provided on smart cards.

The main problem with conventional data transfer devices to mobile handsets is that smart card readers are not used in content application due to their high cost and the cost of smart cards, thus preventing the use of this technology for mass-market content

applications, where the distribution of large number of cards per user is the goal, and therefore a low manufacturing cost is a must.

Another problem with existing products is that no universal data transfer system into at least the most common mobile handsets exists, to cope with the diversity of mobile handsets:

- Different physical plugs.
- Different wireless connection methods.
- Different communication protocols.
- Different displays: size, resolution, colors etc.
- Different support for multimedia content.
- Different menu path (for macros).
- Different operating systems, and application platforms.

Therefore existing solutions are limited in terms of cost, inventory management, and the ability to have full coverage of the handsets in the market in order to allow mass deployment of any application that targets mass audiences.

Another problem with existing products is that existing smart card readers do not have a "field upgradable" capability, and therefore cannot adapt to new models and new requirements of handsets as they reach the market.

A further problem with existing products is that smart cards do not have a developed user interface such as buttons on them which have a functional use, therefore they do not provide control by the user of the applications for which they are used.

Still another problem with conventional mobile data transfer device is that when users are trying to download mobile content over the air they face two major limitations:

1. Usability - the user interface involved in downloading content is not direct and not simple, it involves several stages such as compiling a coded message and sending it to a predefined number.

2. Visibility: A wide range of content exists somewhere in the "cloud" of cyberspace, but the user has no way of knowing what all the options are, and the content providers have very few ways of letting the user know that content is available - in effect most of the mobile content is "hidden" from the user because it is not clearly visible to him.

Usability and Visibility as described above are the two main problems limiting the usage of mobile data, mobile downloads, the usage of content as an attachment in messages (i.e., SMS, MMS), and all other mobile services that providers want to sell or distribute to users.

Another problem with existing products is that there is no way of selling or distributing mobile content at a low cost in a physical manner for example in retail points of sale.

Another problem with existing products is that there is no way of selling or distributing mobile games and applications at a low cost in a physical manner in a way that protects the game or application from being pirated.

Another problem with existing products is that the sale of prepaid credit through scratch cards is limited in terms of marketing power and security; the main reason for this is that scratch cards are valuable because they contain a "live" PIN number which is equivalent to money, therefore they can not be prominently displayed at points of sale for fear of theft, and therefore can not be used as a marketing platform, and can not give the provider of the cards all of the advantages of displaying attractive cards in good locations at points of sale.

While existing devices may be suitable for the particular purpose which they address, they are not as suitable for transferring data and content from a low cost device onto mobile handsets by way of uploading the data and the content from the device onto the mobile handset; and not as suitable for activating server based mobile services by way of sending a predetermined code or SMS message from the device to a remote server; and not as suitable for loading credits into prepaid accounts of customers as payment for air time or for any other mobile service.

In these respects, the universal device for transfer of mobile data and content to handsets according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus primarily developed

for the purpose of transferring data and content from the device of the invention onto mobile handsets, by way of uploading the data and the content from the device onto the mobile handset; activating server-based mobile services by way of sending a predetermined code or SMS message from the device to a remote server; loading credits into prepaid accounts of customers as payment for air time or for any other mobile service, etc.

SUMMARY OF THE INVENTION

In one aspect, the present invention provides a new universal device for transfer of mobile data and content to handset construction wherein the same can be utilized for transferring data and content from said device onto mobile handsets, by way of uploading the data and the content from said device onto the mobile handset; activating server based mobile services by way of sending a predetermined code or SMS message from our device to a remote server; loading credits into prepaid accounts of customers as payment for air time or for any other mobile service.

As will be apparent to the skilled person, the device of the invention, which will be described hereinafter in greater detail, provides a new universal means for the transfer of mobile data and content to handsets, which has many of the advantages of the mobile data transfer device mentioned heretofore and many novel and important features.

Brief Description of the Drawings

Fig. 1 schematically shows an external device, including reading, transmitting and memory elements, according to one preferred embodiment of the invention;

Fig. 2 schematically shows the reading element of the external device of Fig. 1;

Fig. 3 schematically shows the memory element of the device of Fig. 1; and

Fig. 4 schematically shows transmitting elements of the device of Fig. 1, according to three different preferred embodiments of the invention.

Detailed Description of Preferred Embodiments

Referring to the drawings, an external device according to one specific preferred embodiment of the invention comprises:

1. A phone bridge (transmitting element) [80], having connectors at either end, which functions as a bridge for the transfer of data and content between the mobile handset and the reader [10] by virtue of a connection to the handset such as a physical connection, i.e., a clip or connector, or such as an IR connection (a method of transferring content and data to the mobile handset in lieu of a physical connection), or such as a Blue Tooth connection (a method of transferring content and data to the mobile handset in lieu of a physical connection) on the one side, and by virtue of a physical connector which attaches the phone bridge to the reader on the other side;

2. A reader (reading element) [10] which is attached to the phone bridge [80] on the one side by virtue of a physical connector [14] (as described above) and which is connected to the card [50] on the other side by means such as a slot [12] into which the card is inserted, or a docking station;

3. The software which is located in the reader, and

is described in detail below.

4. The card (memory element) [50] is a flat element, which can be made of materials such as plastic or paper and is provided with buttons [56], as well as with non-volatile memory [60], and is connected to the reader [10] by means such as a slot [12] into which the card is inserted, or a docking station or the like;

The data structure which is created by connecting the mobile handset to the phone bridge (as described above) and by connecting the phone bridge to the reader (as described above) and by connecting the reader (which contains the software) to the card (as described above) cooperates to carry out the invention.

The phone bridge [80] is an elongated component with two ends. On the one end there is connector [82] which creates a path for the transfer of data to the mobile handset. The form of the connector to the mobile handset depends on the characteristics of the mobile handset to which it is connected, and such connector may be (but is not limited to) a physical connector [90] which is inserted into the data connector slot on the mobile handset, or it may be a IR connector [86] which is capable of transferring data by infra-red beaming, or it may be a Blue Tooth connector [88] which is capable of transferring data by means of wireless protocol. The other end of the phone bridge [84] connects to the reader and it can clip or snap on to the reader by any variety of spring attachments or similar means.

The reader [10] comes in the form of a rectangle but other shapes are also applicable. Two of the readers' sides are longer than the other two sides (the "length sides"). One of the length sides has a connector [14] to the phone bridge on it. The other length side has a slot [12] into which the card can be inserted. The card [50] is locked into the reader firmly after insertion by a docking system [12] such as a spring attachment or similar means.

The software is stored and is run, in this particular embodiment of the invention, on subcomponents of the reader (the processor unit [24]), the software's main purposes are to interact with the card [50], reading and writing data and processing commands from and to the card; to manipulate the data so that it is suitable to be received by the handset to which it is being connected; and to transfer the data and commands into the mobile handset through the bridge, by running communication protocols and supporting mobile handset protocols as required by every handset supported.

The card [50], according to this particular preferred embodiment of the invention, is a flat, credit card like object which can come in various sizes and shapes. It can be made of different materials, including paper and plastic. Embedded in the card are buttons [56], and a memory chip [60] which is located on the card and contains data and commands. On the same side as the buttons is a connector [52] mechanically and electronically built to fit into the card docking area in the reader [12], and when inserted into the reader, the card plus the reader plus the bridge plus the handset function together as a unit,

transferring data and commands from the card to the handset and the other way around through the reader and the bridge.

The data structure can best be described as following: The memory [60] in each card will contain one or more items. Each item will be logically "packaged" and internally arranged in one of a set of predefined sub-structures. Each data sub-structure will describe one group of items supported by the system such as "text content sub-structure" or "picture file substructure". Each sub-structure is a defined and documented description of the content of the data item, its elements and the parameters of each element. All the items in the cards will be stored according to sub-structures, and the software in the reader will be programmed to read and write such sub-structures from and to the card. The collective of all the sub-structures is defined as the "data structure".

The invention will no be described in greater detail. However, it should be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of the description and should not be regarded as limiting.

The purpose of the phone bridge is to enable the transfer of data between the reader and as many phone models as possible, therefore, by design, there will be provided multiple types of phone bridges, to support many models of phones supported by the universal reader.

The subcomponents within the bridge are:

1. The connector to the reader [84]: A corresponding connector to the connector found on the reader [14].

2. Plastic casing [82].

3. Connector to the mobile phone: As will be apparent to the skilled person, the connector chosen will be suitable to meet whatever capabilities and protocols the corresponding phone models supports. The skilled person will know without the need for undue experimentation, based on the characteristics of the mobile handset (e.g., cellular phone), how to provide suitable phone bridges to meet the standard connection offered by manufacturers today and in the future. Several examples are:

3.1. Infra Red phone bridges [86]: designed to work with phones containing an Infra Red communication device. This bridge family will include a standard Infra Red communication unit. This family may include different models that will have different Infra Red communication units to meet different Infra Red standards, such as IRDA.

3.2. Bluetooth bridges [82]: designed to work with phones containing a Bluetooth communication device. This connector family will include a standard Bluetooth communication unit. This family may include different models that will have different

Bluetooth communication units to meet different Bluetooth standards, such as Bluetooth 1.0.

3.3. Plug Bridges [90]: many phones come with slots for data connectors, which were designed to interface a plug connected to a PC or a phone accessory. Plug bridges are interfaces to such slots built to the standard set by the corresponding phone manufacturer.

3.4. Back cover bridges: In some phones, the back cover is a separate component; and its manufacturers are placing some electric connectors exposed, so that back covers can interface with the phone, in such models, the back cover itself will include both the body of the reader, and the bridge, as originally designed by the phone manufacturers. Alternatively, the bridge can interface the phone using a technology called "dual SIM slots", which is available for many phone models.

3.5. Phone battery bridges: In some phones, the battery is a separate component; and its manufacturers are placing some electric connectors exposed, so that phone batteries can interface with the phone, in such models, the battery itself will include both the body of the reader, and the bridge, as originally designed by the phone manufacturers. Alternatively, the bridge can interface the phone using a technology called "dual SIM slots", which is available for many phone models.

In some models, the reader and the bridge will be permanently connected, and therefore will be a single subcomponent without the connectors on both sides.

The universal reader is shown at numeral [10] in the form of a rectangle, but other shapes are also applicable. Two of the reader's sides are longer than the other two sides (the "length sides"). One of the length sides has a connector [14] to the phone bridge on it. The other length side has a slot [12] into which the card can be inserted. The card [50] is locked into the reader firmly after insertion by a docking system [12] such as a spring attachment or similar means.

The universal reader is a mobile device that transfers data between, on the one hand, the cards (as described below as the cards subcomponent), and on the other hand, multiple types of mobile handsets and PDAs and other mobile communication devices, while overcoming the diversity of mobile handset communication capabilities, connector differences (i.e., IR, Bluetooth, physical clips), protocols supported, media handling capabilities, and more as described below. The reader comprises the following sub components:

1. The casing, made of a low cost material such as plastic, and composed of a back side [16], and a front side [14];
2. The docking station (card interface) [12]: a card holder such as a slot, into which the cards or accessories can be attached, with at least six electrical connectors [11] corresponding to the electrical connectors on the cards, and with a mechanical device that "locks" the card into place employing any suitable locking mechanism, so that it may be comfortably removed by a user but will not fall out when not pulled by a user.

3. The power unit [22]: a portable power source such as a battery replaceable or permanent or a rechargeable battery, or a converter that would take its power from the phone (through the connector), and turn it to the power parameters required by the reader.

4. The processor circuit [24]: a unit consisting of one or more electronic chips, that will be responsible for storing the reader's software and executing the software as described with reference to the "Software" subcomponent

5. The board [26]: an electric board connecting the various elements of the reader together.

6. The reader's connection to the phone bridge [14]: The reader will be connected to the bridge described below, via a mechanical connector, which will insure that the body and the phone bridge are secured, and will allow the user to separate them. The phone bridge and the reader will be connected electronically through at least six connectors, as shown in Fig. 2 In some models, the reader and the bridge will be permanently connected.

The following are additional sub-components that may be added to the reader in some versions:

1. The buttons: the reader may or may not include buttons, such as control buttons, depending on future customer requirements for the tailoring of the device to different applications.

2. Display: the reader may or may not include a display, depending on future customer requirements for the tailoring of the device to different applications; such display might be used for showing the user what is available on the card, so that the user can browse the content of a card without a mobile handset present.

3. Light indicator [20]: the reader may or may not include light indicators, such as red or green LEDs, depending on future customer requirements for the tailoring of the device to different applications; such light indicators might be used for signaling the status of the device to the user.

4. Sound indicator [28]: the reader may or may not include sound indicators, such as a beeping speaker, depending on future customer requirements for the tailoring of the device to different applications, such sound indicators might be used for signaling the status of the device to the user.

5. A button device driver: A button device driver responsible for managing multiple buttons on a card and communicating to the processor which button was pressed - in the basic design such driver is located on the card, but in other version such device driver can reside on the reader and can also be programmed into the software running on the reader's processor.

The readers' software: the software running on the reader's processor is designed to support all the operation and usage-scenario modes described below. The software running on the reader's processor can generally be described as having three layers.

Layer 1: Card communication: This layer reads and, if desired, writes data sub-structures (explained in the "data structure" component below) to and from the card - for example when reading a picture. This layer also receives and sends commands from and to the card - for example, when receiving a message that a button was pressed by the user.

Layer 2: Central management and control of the reader: deciding what to do at each point in time, packaging the data to meet the specifications required by the phone (using the functions described below), and managing layers 1 and 3 in synchronization, and monitoring operation and status.

Layer 3: Phone communication: communicating with the phone, using the protocol appropriate for the "phone bridge" used, and the phones capabilities and supported protocols, to send and receive data structures defined by the phone manufacturer.

Additional main software functions may include:

Function 1: data packaging for the phone: each phone model has different data structures in which it packages the data it sends and/or receives via its communication ports. This function is phone-model specific, and knows how to match and convert between, on the one hand, the data sub-structures of the invention (described below) and on the other hand, the data structures appropriate for the phone.

Function 2: Phone model adjustments: this function is responsible for delivery from layer 1 to layer 3 of the "most suitable" content that the specific phone model can support. For example the card may contain both a black & white picture and a color picture for the same button, and this function, will know it has to match a B&W picture to B&W phone models and a color picture to color phone models. Another example is adjusting the resolution of a picture stored in the card to match the resolution of the phone's display.

Function 3: Decryption - a function to decrypt an encrypted code.

"Field upgradable" functionality: The software will support the "live update" of software elements in the reader's memory, meaning that there are sub-structures defining "software updates", and the software will be capable of reading such "software update sub-structures" from cards, and of adding them into the software itself while it is running.

In the cases where the reader is incorporated into the phone, the software may be stored and run on the storage and processors of the handset itself - thus making the handset itself "the reader". In such cases the layer dealing with the communication to the handset (layer 3 above) will be in charge of reading and writing directly into the handset data storage areas, and communicating with the user interface devices of the handset such as keys and display.

Cards [50] are components that fit into the reader's docking station as described above in the reader section, and can communicate with the reader, using the data structures described below. The card consists of the following subcomponents:

1. The cards' body [54]: it can come in any shape or size for example a card the size of a credit card. It can be made of many materials such as but not limited to PVC or paper. Different graphic designs can be printed on the cards to meet customers' specifications.
2. The cards memory unit [60]: ROM, RAM, Flash, EEprom, Eprom or other forms of memory.

3. The cards connectors [52]: a set of at least six connectors corresponding to the connectors inside the readers docking station.

4. The cards buttons [56]: the card will have buttons on it. There are several types of possible buttons as described above, such conductive buttons that close a circuit when a finger presses them, pressure buttons or other types of buttons.

5. A button device driver 62]: A button device driver responsible for managing multiple buttons on a card and communicating to the reader which button was pressed.

6. An electric circuit [58]: which connects the different card elements such as the memory and the buttons device driver to the connectors, connects the buttons to the buttons device driver, etc.

Possible additional versions of the card include:

1. The card may have no buttons on it, for example a card that is designed to upload its content immediately upon insertion to the reader, or a card designed to work with a reader version that has operating buttons on the reader.

2. The card may not include a button device driver, in the case that the buttons are linked directly to the reader, and the reader will include button device driver functionality, in case the buttons are on the reader, and the card has no buttons on it.

3. The card may include a standard magnetic strip, for the storage of small amount of data, and to allow the card to be swiped in retail outlets that are equipped to swipe magnetic stripes such as the one found on the back of credit cards.

4. The card may include printed information hidden behind a stripe of scratch-able material, or behind a (sticker), similar to scratch cards mentioned above.

5. The cards connectors may be hidden or rendered inoperable by a conductive (sticker) or (opaque cover or coating) - so that the content of the card can not be read until this (sticker) or (opaque or coating) is removed from the card. This method works in two ways: firstly, because of the sticker or the opaque coating the card cannot mechanically be inserted into the reader until such cover is removed; secondly, even if a hacker tries to hack into the card by trying to touch the connectors directly the hacker will be blocked by the fact that the cover is conductive and therefore all of the connectors are connected to each other until the cover is removed.

6. Light indicator: the card may include one or more light indicator such as LED, for example to signal to the user the occurrence of actions or events on the card.

7. The card may have a camera or video camera connected to it.

8. The card may have a mobile GPS device.

9. The card may have a mobile electronic pen or other pointing device or sketching device.

10. The card may have a qwerty keyboard or other keyboard on it.

11. The card may have any other different mobile accessory that otherwise is connected to phones using non-universal connections.

The memory in each card will contain one or more items. Each item will be logically "packaged" and internally arranged in one of a set of predefined sub-structures. Each data sub-structure will describe one group of items supported by the system such as "text

content sub-structure" or "picture file substructure". Each sub-structure is a defined and documented description of the content of the data item, its elements and the parameters of each element. All the items in the cards will be stored according to sub-structures, and the software in the reader will be programmed to read and write such sub-structures from and to the card. The data structure is the logical way of making sure that all the cards speak the same "language" with all the reader, so that the cards can be sold independently of the types of handsets out in the market. Some illustrative and non-limitative examples of data sub-structures are:

1. A content data sub-structure, such as the following examples:

1.a. Text

1.b. A picture, (multiple formats such as JPG, GIF)

1.c. An animation (multiple formats such as GIF)

1.d. Audio or music file (multiple formats such as AVI, MP3)

1.e. Ring tone file (multiple formats)

1.f. Video (multiple formats such as MPEG4)

1.g. A karaoke file, containing a melody, and a text corresponding to each element of the melody.

1.h. A theme file (also known as an album) - a collection of several other file formats bundled into a single entity.

2. A macro command - a predefined set of keystrokes to be executed one after the other on the phone.

3. A preset mobile message - a full or partial mobile message to be sent through the phone (multiple formats such as SMS, EMS, MMS, e-mail), such preset message will include the content of the message, the attachments, the address of the recipient such as a phone number, and any other information required by the messaging protocol used.

4. A code - a set of characters, usually different code is assigned to each individual card.

5. An encrypted piece of information.

6. A software application or game, written in mobile phone software systems such as JAVA or BREW.

7. General data elements: such data will be transferred to the phone as is, with the assumption that the phone knows what to do with it. (One example is input data for a software application or game), the header of this data sub-structure will define it as a "general data element" and it will be passed on to the phone as is.

8. A software element for the reader - such data sub-structure is used in "Maintenance cards" to upgrade or fix the software of the reader. The data in this type of item is not transferred to the phone, but instead is used to replace portions of the reader's software as needed.

9. A combination data sub-structure: a "super sub-structure" which houses two or more data sub-structures to be implemented one after the other, for example, a SMS message plus a macro command in a single data sub-structure. A data sub-structure may support several alternative files for the same item, for example for a picture item, the data sub-structure will support the storage of both a black and white, and a color picture - in the same data sub-structure element. Some illustrative used (also called hereinafter "scenarios") of the device of the invention will now be described.

Typically, the reader and the bridge will be sold connected, or will in most cases be connected immediately after purchase and will remain connected and carried as a single unit. Therefore the term "the reader", as used herein, includes the reader either alone or when connected to the bridge.

As a rule, when the reader communicates with the handset, it uses communication protocols and capabilities defined by the handset manufacturer. Therefore, any applicability of each scenario described herein to a specific phone model depends on the support of that handset model for such function. For example a scenario describing the upload of a color picture to a handset depends on the capability of that model to store and present color pictures.

In addition the programming of the software to perform the actions described herein will be according to handset manufacturer's instructions, and in some cases, even using code supplied by the handset manufacturer. All the scenarios described herein are applicable to handsets that are available on the market.

All operation scenarios relate to the use of 3 hardware elements together, which will be termed the "system". The "system" includes: 1. a Mobile handset (usually a phone or PDA); 2. A Reader (as mentioned above, with the bridge already connected to it); and 3. A Card.

Most operation scenarios include the basic function termed as: "press a button" this basic function is described as follows:

1. The user inserts a card into the reader,

2. The user makes sure the reader is "connected to the phone"

This depends on the bridge type used, for example:

- In a "physical plug bridge", the user snaps the plug into the phone.

- In an "Infra-Red bridge" the user turns the "receive via infrared" in the phone to "On", and point the reader to the IR port of the phone".

- In a Bluetooth bridge, the user turns the "receive via Bluetooth" in the phone to "On" (in some handset models it is on as default) , and holds the reader close enough (10 meter).

- In a back cover or battery reader, the reader is mounted on the handset therefore no additional action is needed.

3. The user activates a system action - usually by pressing a button on the card. But in other system versions it can be done by pressing a button on the reader (if the reader has buttons on it) or on the handset (in some models where the reader is part of the back-cover).

Actions 1 - 3 above will be termed "press a button".

The following is a list of the scenarios using this "press a button" action:

Scenario 1: Mobile content upload:

Description of the card used in this scenario:

A card with buttons that corresponds to content items that reside on the card's memory.

Description of the scenario:

User "presses a button" and the content is uploaded through the reader and into the appropriate storage area in the handset.

Examples:

1.a The upload of a text sentence from the card into the list of template SMS messages on the handset.

1.a The upload of a picture file from the card into the list of picture files on the handset.

1.c The upload of a ring tone from the card into the list of ring tones on the handset.

1.d The upload of a animation from the card into the list of animations on the handset.

This scenario is applicable to all other content types described in the "data structure" components, such as multimedia files, software file, and any other type of content supported by handset models.

Scenario 1.1 : content upload as part of sending a mobile message.

Description of card used in this scenario:

A card with a button that corresponds to a content file that resides on the card's memory.

Description of the scenario:

User "presses a button" and the content is uploaded into this content type storage area in the phone, and displayed on the phone for viewing (by the handset). The user immediately uses the phone's own menu to send this picture via a mobile messaging technology such as SMS, EMS, MMS, picture-messaging or mobile email to someone else.

Remark:

This scenario is applicable to all content types described above, with the necessary adjustment, (for example an audio file is played and then sent by the user).

Scenario 2: Activation of "macro commands" from the card.

Description of card used in this scenario:

A card with a button that corresponds to a "macro command" file (as defined in the data structure component section above) that resides on the cards' memory.

Description of the scenario:

User "presses a button" and the command is re-played on the phone, keystroke by keystroke. for example, a "Macro command" that mimics the "Clear" keystroke, followed by a set of digit keystrokes, followed by a "Yes" keystroke, will, when executed by the "press a button" action - cause the phone to call the number that the digits in the macro represent.

Remark:

Can be used to activate existing menus on the phone. Can be used to change set-up of the phone, start applications (like calculator etc.)

Scenario 3: sending preset messages from the card through the phone.

Description of card used in this scenario:

A card with a button that corresponds to a "preset message" file (as defined in the data structure component section above) that resides on the card's memory.

Description of the scenario:

User "presses a button" and the reader takes the preset message from the card and sends it to its preset destination through the handset. In this case the handset is just used as a

communication device to send the message through, using protocols defined by the handset manufacturer.

Remark:

Can be used to send all types of mobile messages as supported by the phone.

Scenario 3.1: sending preset messages with attachments from the card through the phone.

Description of card used in this scenario:
A card with a button that corresponds to a "preset message" file (as defined in the data structure component section above) that includes an attachment such as a multimedia file, which resides on the cards' memory.

Description of the scenario:
User "presses a button" and the reader takes the preset message with the attachment from the card and send it to its preset destination through the handset. in this case the handset is just used as a communication device to send the message through, using protocols defined by the handset manufacturer.

Remark:

Can be used to send all types of mobile messages as supported by the phone.

In some models the attachment can be of a type that is not supported by the phone for display - only supported for sending. for example, an EMS message which can include an icon picture, can be sent in this way through a phone that does not support the display of EMS message and icons, but since EMS is just a concatenation of several SMS messages together - this scenario allows the sending of EMS messages including icons from phones that support only SMS and not EMS.

Scenario 4: sending preset messages from the card through the phone - in order to begin a remote service such as a content download.

Description of card used in this scenario:

A card with a button that corresponds to a "preset message" file (as defined in the data structure component section above) that resides on the card's memory.

Description of the scenario:

User "presses a button" and the reader takes the preset message from the card and sends it to its preset destination through the handset. The remote server receives the preset message which is actually and command and responds accordingly by activating the requested service.

Scenario 5: sending preset messages from the card through the phone - in order to deliver a code to a destination, such as activation codes for pre-paid mobile airtime accounts.

Description of card used in this scenario:

A card with a button that corresponds to a "preset message" file (as defined in the data structure component section above) that resides on the card's memory.

Description of the scenario:

User "presses a button" and the reader takes the preset message from the card and sends it to its preset destination through the handset. Once the message is received the user's account is credited accordingly.

Scenario 6: uploading a software application (Java, BERW) to the phone.

Description of card used in this scenario:

A card with a button that corresponds to a content file that resides on the card's memory.

Description of the scenario:

User "presses a button" and the software application is uploaded into this aplication type storage area in the phone, and displayed on the phone for viewing and use (by the handset). The user immediately uses the phone's own menu to activate and use the application.

Scenario 7: Communicating with a software application (Java, BERW) in the phone.

Scenario 7.1: putting some of the functions of a game onto a card according to the invention,

Scenario 8: top-up card - sending preset messages from the card through the phone - in order to deliver a code to a destination, such as activation codes for pre-paid mobile airtime accounts.

Scenario 9: Top-up card - using any suitable covering technique.

Scenario 10: Top-up card - using any suitable covering technique with the same (or other) code also printed on the card and covered, for example with a "scratch" material.

Scenario 11: Top-up card, with the code encrypted, using a decrypting reader on the Point of Sale, prior to the sale.

Scenario 11: Top-up card, with the code added to it at the Point of Sale, prior to the sale.

Scenario 12: Multi-use Top-up card, that carries the details of the phone number and mobile-operator on the memory of the card, and works with a corresponding reader at the point of sale.

Scenario 13: Multi-use Top-up card, that carries the details of the phone number and mobile-operator on the memory of the card, and works with any reader that was authorized to top-up that specific phone (such as a child's parents).

Scenario 14: Multi-use Top-up card, that carries the details of the phone number and mobile-operator on the card on a magnetic strip, and works with a corresponding reader at the point of sale.

Scenario 15: Multi-use Top-up card, that carries the details of the phone number and mobile-operator on the card on a magnetic strip, and works with a corresponding reader at the point of sale.

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and

operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

CLAIMS:

1. A device for sharing data from an external data source with a mobile handset, comprising:

- reader means, suitable to read data from a detachable data source;

- transmission means, suitable to transmit data read by said reader means to said mobile handset; and

software means to covert the data read by said reader into data transferable by said transmission means.

2. A device according to claim 1, wherein the reader means comprise contact reading means.

3. A device according to claim 1, wherein the reader means comprise contactless reading means.

4. A device according to claim 1, wherein the transmission means comprise optical or radio transmitting means.

5. A device according to claim 4, wherein the optical transmitting means comprise an IR port.

6. A device according to claim 4, wherein the radio transmitting means are selected from RF and Bluetooth transmitters.

7. A device according to claim 1, wherein the transmission means comprise direct contact connecting means.

8. A data set comprising in combination:

a) A device for sharing data from an external data source with a mobile handset, comprising:

- reader means, suitable to read data from a detachable data source;

- transmission means, suitable to transmit data read by said reader means to said mobile handset; and

software means to convert the data read by said reader into data transferable by said transmission means;

and

b) Memory means containing data.

לוצאטו את לוצאטו
LUZZATTO & LUZZATTO
By: עו"ד

Figure 1

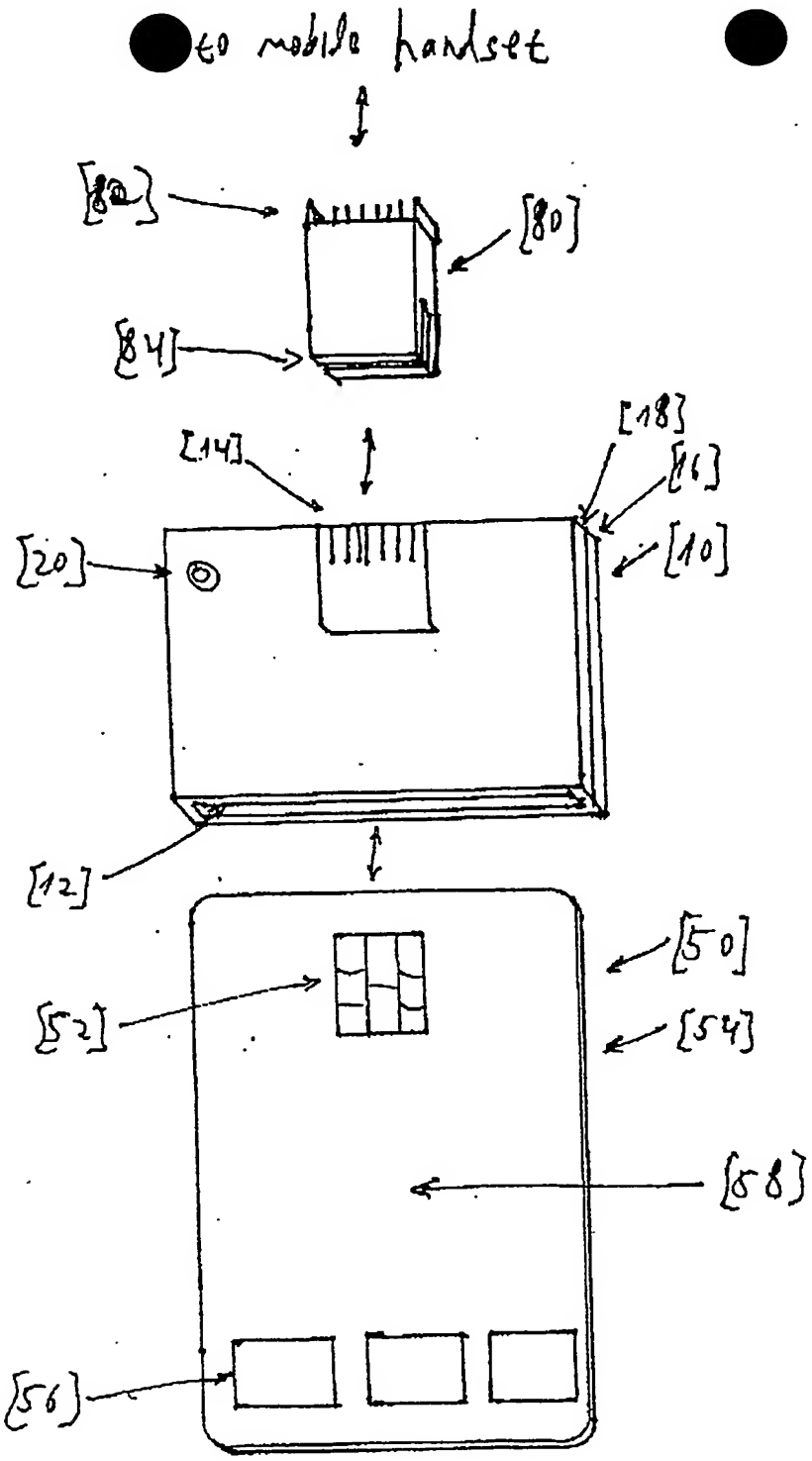


Figure 2

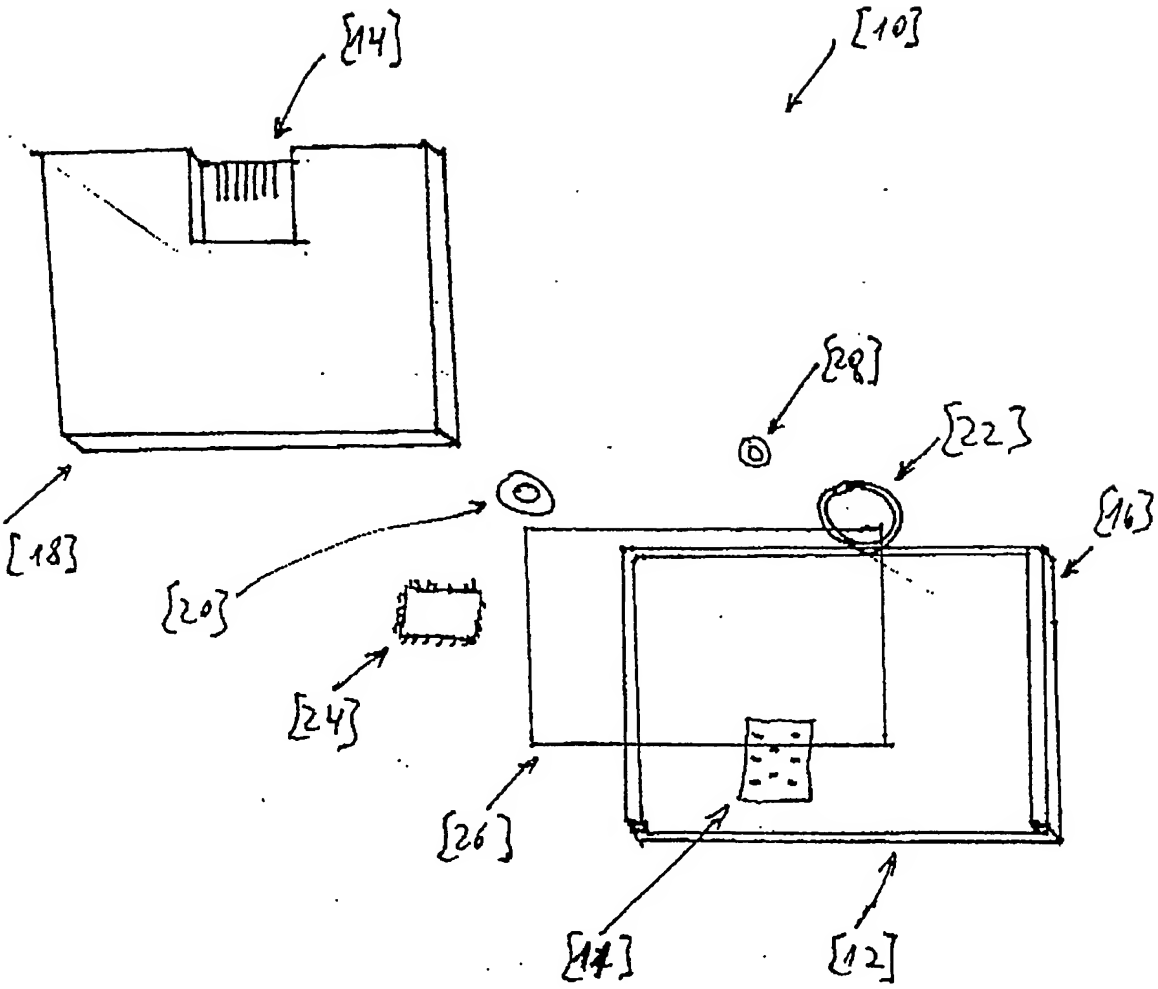


figure 3

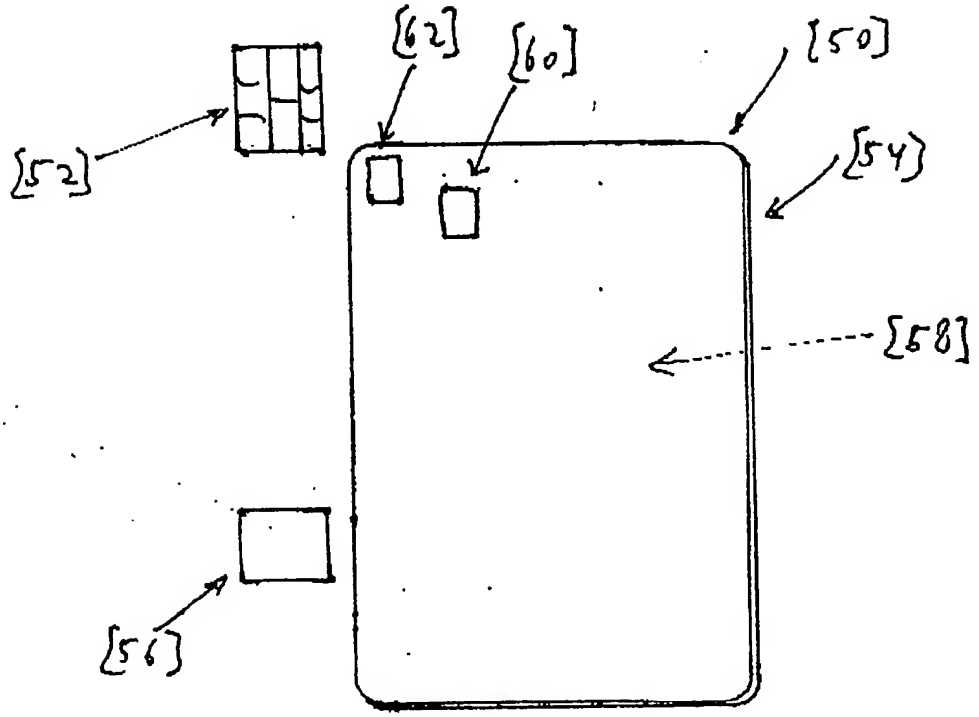
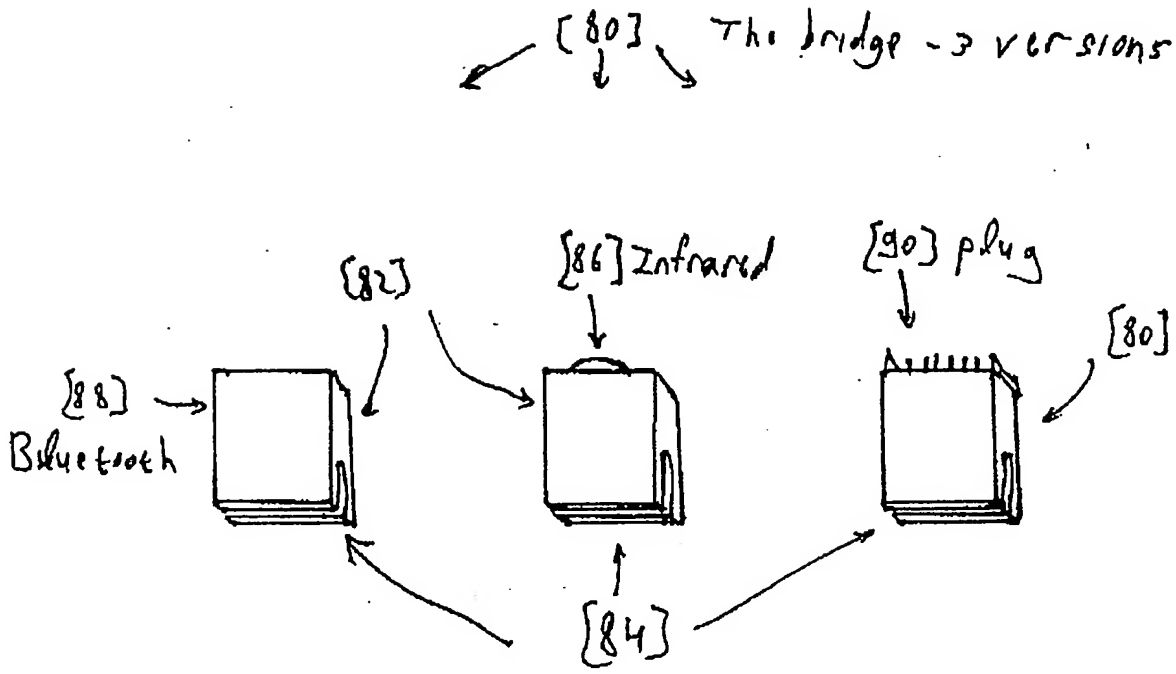


figure 4


[80] The bridge - 3 versions
[82]
[86] Infrared
[90] plug
[80]
[88]
Bluetooth
[84]